

Economic Inventory Decisions for Agricultural Products

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Abstract

Agricultural products are vital to national stability, contributing to food security, economic growth, employment, and export revenues. A robust agricultural sector also supports rural development, enhances national resilience, and promotes public health through access to nutritious food. This study presents a novel inventory model designed to maximize farmers' profits. Unlike traditional models, the proposed framework considers both the unit cost and selling price as functions of time, reflecting real-world market dynamics. The model includes setup, operational, and inventory holding costs, offering a comprehensive view of the economic factors influencing agricultural inventory decisions. An optimal solution is derived analytically, and a sensitivity analysis is conducted to evaluate the impact of key input parameters on profitability. The findings provide actionable insights for farmers and policymakers aiming to improve agricultural efficiency and sustainability through strategic inventory management.

Keywords

Economic Inventory, Decisions, Agriculture Products.

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